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10/071,910

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Ian D. Stedman

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10/28/2003

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EXAMINER

COLON SANTANA, EDUARDO

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/071,910

Applicant(s)

STEDMAN, IAN D.

Examiner

Eduardo Colon-Santana

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-98 is/are pending in the application.
- 4a) Of the above claim(s) 56-63 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 75-78 and 88-98 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 13, 15-20, 29-33, 37-55, 64-67, 70-74, 79-84, 86 and 87 is/are rejected.
- 7) ☒ Claim(s) 10, 12, 14, 21-28, 34, 36, 69, 73 and 85 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/03/2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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#### DETAILED ACTION

1. Applicant's election without traverse of claims 1-55 and 64-98 in Paper No. 9 is acknowledged.

2. Claims 56-63 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

#### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "In Fig. 4, reference signs (#58B and #84), in Figs. 14A-14C, 15A-15C, 16A-16C and 17A-17C, reference sign (#170)". A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### *Specification*

4. The abstract of the disclosure is objected to because "the content is not a proper statement of the technical disclosure". Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper content of an abstract of the disclosure.

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A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) If a machine or apparatus, its organization and operation;
- (2) If an article, its method of making;
- (3) If a chemical compound, its identity and use;
- (4) If a mixture, its ingredients;
- (5) If a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The disclosure is objected to because of the following informalities: In page 24, line 20, electronics (174), should say "electronic (172)" and in page 27, line 2, air gap (192) should say "air gap (80C)".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9, 11, 13, 15-20 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Klatt U.S. Patent No. 4,634,950.

Referring to claims 1 and 4, Klatt discloses an electric apparatus (see Figs. 1-6 and respective portions of the specification). Klatt further discloses an electric machine, which is adapted to function as a motor or generator including a stator having two windings and a rotor arranged to rotate

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relative to the stator containing two windings (see Fig. 1). Klatt further states in the abstract that the magnetic field of the rotor windings are synchronized to the magnetic field of the stator windings, and as a result the phase angle, amplitude and frequency can be controlled with the alternating currents of the circuit (microprocessor).

As to claims 2, 3 and 9, Klatt discloses that the two rotor windings and stator windings are 90°-degree phase shift relative to each other when excited (current flow) (see Fig. 1 and Col. 3, lines 29-30).

Referring to claims 5-8, 13, 16 and 17, Klatt discloses that feedback communication for specific motor functions, for example phase angle; amplitude; velocity etc., can be implemented by transducers now readily available, and mentions optical electronics and electrical transformers (magnetic). Furthermore, transferring power and control signals for controlling phase angle can be done with radio waves (electromagnetic) transducer (see Col. 10, lines 34-68 and Col. 11, lines 1-3).

Referring to claims 11 and 15, Klatt discloses a circuit (#61) and (#86) connectable to the rotor (see figures 5 and 6).

As to claim 18, Klatt discloses a rectifier (#93), (see Fig. 6).

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Referring to claim 19, Klatt discloses a microprocessor (#5 or #88).

As to claim 20, Klatt discloses in the abstract that the stationary windings (stator) are always synchronized to the magnetic field.

As to claim 29, Klatt discloses that the in Fig.3 an arrangement of a permanent magnet rotor.

7. Claims 30, 31, 41, 52, 53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Carr et al. U.S. Patent No. 5,430,362.

Referring to claims 30, 41, 52, 53 and 54, Carr et al. discloses an engine starting system utilizing multiple controlled acceleration rates (see figures 1-23 and respective portions of the specifications). Carr et al. further discloses an electromagnetic machine, which may be operated as a motor to convert electrical power into motive power, including a stator (#26) containing windings (#24a-#24c) and a rotor (#20) arranged to rotate relative to the stator (as shown in Fig. 9) containing rotor windings. Furthermore, Carr et al. discloses an exciter or control transformer (#14) containing a primary winding (#28) and a secondary winding (#30a-#30c) in communication with the stator and the rotor windings (see Fig. 1A). Carr et al. discloses in addition a control circuit, which is illustrated from figures

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2A-2B, showing the use of a rotor position sensor #44, for angular position sensing and the control of the phase angle when generating a rotating magnetic field.

As to claim 31, Carr et al. discloses that start circuits are disposed in the control circuit in communication with stator and rotor windings (see Figs. 2A and 2B and Col. 8, lines 40-43).

Referring to claim 32, Carr et al. discloses a one-phase circuit (#28) in communication with the stator (#12) (see Fig. 1A).

As to claims 33 and 38, Carr et al. discloses a rectifier (#32), for rectifying power delivered by a source of alternating current.

Referring to claim 37, Carr et al. discloses a main inverter (#50) as a drive circuit (see Fig. 2B).

As to claims 39 and 42, Carr et al. mentions that the exciter acts as a rotary transformer (see Col. 14, lines 46-50).

Referring to claims 40 and 43, Carr et al. discloses that DC power is applied to the main generator portion field winding (#34), which is connected to the rotor (#20) (see Fig. 1A and Col. 14, lines 50-55).

8. Claims 44-51 and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Ernest U.S. Patent No. 5,105,141.



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Referring to claim 44 and 55, Ernest discloses a device to control the speed of a two-phase or three-phase motor (see Figs. 3 and 5, and respective portions of the specifications). Ernest further discloses that a motor in Fig. 1 with stator (#15) and rotor (#17) arrange to rotate relative to the stator and representing the motor in box (#30) including a main phase winding (#31) and an auxiliary winding (#32), and containing a capacitor phase-shifted winding (#33) driven by alternating currents (see Fig. 3).

As to claims 45-51, Ernest discloses that the main phase winding and auxiliary windings of the motor (stator and rotor) are driven by alternating current from switches (i.e. #45 and #46) (see Fig. 4) or by a control circuit (#67) (see Fig. 5).

9. Claims 64, 72 and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Luce U.S. Patent No. 5,754,420.

Referring to claims 64 and 74, Luce discloses a rotating field transformer (see Fig. 1 and respective portions of the specifications). Luce further discloses in the abstract that a rotating electric machine having two sets of winding are connected to a respective polyphase electric circuit for supplying power, one being the stator winding and the other being the rotor windings, (see figure 1, items #24 and #20) for generating a rotating magnetic field. In addition, Luce

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discloses a controller circuit (#66) used to control the output of the torque motor, from which the rotor (#24) generated its magnetic field.

As to claims 65 and 66, Luce discloses that different configurations in which rotor windings are disposed about a shaft are recognized by those skilled in the art, and mentions permanent magnets as magnetic material to generate magnetic fields (see Col. 3, lines 12-20).

Referring to claims 67, 68, 70 and 71, Luce discloses that for transferring power and control signals for operating the circuit or controlling the phase angles of the stationary portion of the motor to the rotor, brushes (#40, #42 and #44) are used (see Fig. 2). Luce further states that rotary transformers can also be employed (see Col. 3, lines 38-44).

10. Claims 79-82 are rejected under 35 U.S.C. 102(b) as being anticipated by Ban et al. U.S. Patent No. 4,645,991.

Referring to claim 79, Ban et al. discloses an apparatus for removing torque ripples in DC motors (see respective portions of the specifications). Ban et al. discloses in the abstract that an apparatus for reducing torque ripples includes a motor having a rotor and stator coils. Ban et al. further states that the control of the stator and rotor is done simultaneously, so the currents flowing there through are kept

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equal, while they are varied, thus measuring torque on the motor (see Col. 5, lines 45-48 and Col. 6, lines 34-42).

As to claims 80 and 81, Ban et al. discloses that upon starting, the motor is accelerated with a maximum output torque and the speed is controlled as to reduce torque and stop acceleration (deceleration) (see Col. 7, lines 39-50).

Referring to claim 82, Ban et al. discloses a motor (#76), which would inherently act as a generator or a motor on demand if instead of converting mechanical power, it converts electrical power by moving current carrying coils in the rotor slower than the motor creates a torque in a direction opposing the rotor rotation.

11. Claims 83 and 84 are rejected under 35 U.S.C. 102(b) as being anticipated by Rasmussen U.S. Patent No. 6,037,742.

Referring to claim 83, Rasmussen discloses a method for the field-oriented control of an induction motor (see figure 1 and respective portions of the specifications). Rasmussen further discloses the steps of determining a rotor flux vector by estimating the rotational speed of the motor (see Abstract) and in additions states that the angular position of the rotor ( $\theta_r$ ) is supplied to a speed estimator (#6), (see Fig. 2 and Col. 4, lines 39-43). Furthermore, Rasmussen discloses that the two separate components of the rotor flux vector ( $i_{sq}$  and  $i_{sd}$ ) are

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driven in accordance by the inductance and current from the motor (#2), which represent the same direction as the flux and torque behavior (see Fig. 1 and 2).

As to claim 84, Rasmussen disclose that the angular velocity ( $\omega_r$ ) is determined by the speed estimator (#6) and the command and instantaneous motor velocity are expressed as the slip ( $\omega_s$ ) of the rotor and each are compared at the summation (#7) (see figure 1 and Col. 4, lines 26-39).

12. Claims 86 and 87 are rejected under 35 U.S.C. 102(b) as being anticipated by Karagiannis et al. U.S. Patent No. 5,867,023.

Referring to claims 86 and 87, Karagiannis et al. discloses a converter circuit for rotary transformer sensing devices (see Fig. 1 and 3, and respective portions of the specification). Karagiannis et al. further discloses an electric motor (#10) that includes a rotor, which is couple to a rotary transformer that receives alternating waveforms (encoded) developed from the converter circuit #14, which represents rotor position of the motor, through the air gap between the primary portion of the rotary transformer (#52) and the secondary portion of the rotary transformer (#54a-#54c). Furthermore, Karagiannis et al. states that the waveforms are converted (decoded) into logic signals to

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a motor drive circuit (#16) (see Fig. 1 and 3 and Col. 2, lines 63-67 and Col. 3, lines 1-10).

***Allowable Subject Matter***

13. Claims 75-78 and 88-98 are allowed.

14. Claims 10, 12, 14, 21-28, 34-36, 69, 73, 85 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

15. The references listed on the enclosed form 892 and not specifically relied upon are considered pertinent to applicant's disclosure to further show the state of the art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon-Santana whose telephone number is (703) 305-8415. The examiner can normally be reached on Monday thru Thursday 7:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E. Nappi can be reached on (703) 308-3370. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

ECS

October 21, 2003

  
**ROBERT NAPPI**  
**SUPERVISORY PATENT EXAMINER**